

REMARKS/ARGUMENTS

Claims 1-12 are present in this application. By this Amendment, the title and claims 1 and 9 have been amended. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

At the outset, Applicant extends his appreciation to Examiner Salata for his courtesy in conducting a telephone interview with Applicant's representative on April 10, 2007. During the interview, Applicant's representative discussed proposed revisions to obviate the formal objections. Applicant's representative additionally discussed what is meant by an angle "relative to gravity." In particular, an angle relative to gravity is an angle measured relative to the Earth's gravitational pull or true vertical. As discussed during the interview, the claims have been amended to recite that an angle relative to gravity is irrespective of the vehicle base and ground slope. Examiner Salata understood the meaning of the phrase. With regard to the rejections over prior art, Applicant's representative discussed distinctions between the invention and the references of record.

With reference to the Office Action, the title of the invention was objected to as not being descriptive. Claims 1-8 define a method of controlling boom angles in a boom lift vehicle, and claims 9-12 define a boom lift vehicle. The title has been amended so that it is more clearly indicative of the invention to which the claims are directed. Withdrawal of the objection is requested.

Claims 1-12 were provisionally rejected under 35 U.S.C. §101 as claiming the same invention as that of claims 1-22 of co-pending U.S. Patent Application Serial No. 10/786,164. This rejection is respectfully traversed.

The Office Action contends that “controlling the boom angle based on several options is seen as the same as plural paths in 10/786,164.” The ‘164 application, however, defines, *inter alia*, a method of controlling a tower boom path in a boom lift vehicle, where pivoting of the tower boom relative to the vehicle base and telescoping of the tower boom are performed simultaneously and independently such that the tower boom nose pin follows one of a plurality of predetermined paths depending on an angle of the main boom. In this context, different main boom angles cause the control system to pivot and telescope the tower boom such that the tower boom nose pin follows a set path from a plurality of set paths. If the angle of the main boom changes, the tower boom nose pin follows a different set path. Another feature of the ‘164 application resides in a method of controlling the tower boom path where pivoting of the tower boom relative to the vehicle base and telescoping of the tower boom are performed simultaneously, and pivoting of the tower boom relative to the vehicle base and telescoping of the tower boom are controlled such that the nose pin predetermined path is one path for tower boom angles less than a predetermined angle relative to gravity and a different path for tower boom angles greater than the predetermined angle relative to gravity. In claim 22, the predetermined path of the tower boom nose pin is varied based on an angle of the main boom relative to gravity. Claim 19 defines related subject matter in the context of a boom lift vehicle.

The contention that the subject matter of the present application is the same as that disclosed in the ‘164 application evidences a misunderstanding of both the ‘164 application subject matter and that of the present invention. In contrast with the ‘164 application, claim 1 of the present application relates to controlling a main boom when the tower boom is below a maximum allowable tower boom angle relative to the vehicle base for transport. In contrast, the ‘164 application relates to controlling a path of the tower boom relative to an angle of the main

boom. As such, since the '164 application relates to controlling pivoting and telescoping of the tower boom while the claims of the present application relate to controlling the main boom, Applicant respectfully submits that the rejection is misplaced.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 1-12 were rejected under 35 U.S.C. §112, second paragraph. This rejection is respectfully traversed. Applicant respectfully submits that those of ordinary skill in the art would readily understand Applicant's use of the phrase "angle relative to gravity" in the context of the present specification. That is, as discussed during the interview, Applicant submits that those of ordinary skill in the art would readily appreciate that a 0° angle "relative to gravity" would be an angle at true horizontal. The specification describes that the boom envelope is controlled preferably relative to gravity, regardless of ground slope. See, e.g., paragraph [0035]. Use of the phrase "relative to ground" as suggested in the Office Action would not be consistent with the structure and operation of the present invention if the ground on which the vehicle is supported is inclined. In the exemplary embodiments, when the vehicle base is supported on an inclined ground, controlling boom angles relative to gravity improves stability and prevents the vehicle from reaching unstable positions.

Applicant's representative discussed this language during the interview. In an effort to clarify the intended claim scope, as suggested by the Examiner, the independent claims have been amended to recite that "an angle relative to gravity is irrespective of the vehicle base or ground slope."

Withdrawal of the rejection is respectfully requested.

Claims 1-11 were rejected under 35 U.S.C. §103(a) over U.S. Patent No. 5,390,104 to Fulton in view of U.S. Patent No. 4,179,010 to Ashworth. This rejection is respectfully traversed.

In setting forth the grounds of rejection, the Office Action references components of the Fulton system including a chassis 10 and a telescopic boom 15. The Office Action provides that “based on a detection of center of gravity and boom angles, the boom angle is set at vehicle drive.” The Fulton apparatus, however, is primarily a control interface for the operator. The system includes input sensing devices “worn” by the operator that the operator uses to initiate movement of the machine. Fulton describes that outriggers 22 are employed to provide an expanded support base and to pre-level the machine at each location where the support structure is to be deployed. As a consequence, a boom angle is not set at vehicle drive as contended in the Office Action; rather, the boom is retracted for transport. Moreover, claim 1 recites a step of controlling the main boom when the tower boom is below a maximum allowable tower boom angle relative to the vehicle base for transport. Since the Fulton system lacks any such tower boom, it is apparent that Fulton lacks a step of controlling the main boom relative to a tower boom elevation angle.

Still further, since the base structure is leveled before operation via the outriggers 22, swinging the boom on a leveled bearing would not change the angle of the boom relative to gravity, which would thus render the system described in the present application unnecessary. The method defined in claim 1 monitors the boom relative to gravity and compensates the lift functions to maintain a given angle of the tower or main boom during operation. The leveling jacks in the Fulton system prevent the machine from driving when the boom is deployed, thereby

also rendering the system described in the present application unnecessary, which enables drive with the boom deployed.

The Office Action acknowledges that Fulton lacks a pivotally coupled main boom, but contends that Ashworth discloses such a boom. Neither Fulton nor Ashworth, however, describes a tower boom as claimed. The Ashworth patent includes only a jib and a main boom. Like the Fulton patent, Ashworth illustrates the use of outriggers, which prevent driving while using the boom. With outriggers or leveling jacks, the system described in the present application would be unnecessary.

In an effort to clarify these distinctions, claim 1 has been amended to recite that the controlling step is practiced when performing the swing function, during vehicle drive, and both when performing the swing function and vehicle drive. Neither Fulton nor Ashworth provides for boom angle control relative to gravity when performing swing or during vehicle drive. Applicant thus respectfully submits that the rejection of claim 1 is misplaced.

Claim 5 defines a method of controlling boom angles including a step of controlling the main boom when the tower boom is below the tower boom elevation angle and when performing at least one of the swing function, the main telescope function, or vehicle drive. The controlling step is practiced by adjusting a main boom angle relative to gravity to reduce the effects of changes to the main boom angle. With reference to the discussion above, neither Fulton nor Ashworth discloses this subject matter. Indeed, the use of outriggers or a leveling jack renders the claimed method unnecessary. Applicant thus respectfully submits that the rejection of claim 5 is also misplaced.

Claim 9 defines a boom lift vehicle including a control system that controls the main boom when the tower boom is below the tower boom elevation angle to maintain a boom angle

relative to gravity at a first set point angle when performing the swing function or during vehicle drive or both. Neither Fulton nor Ashworth disclose such a control system, and Applicant submits that the rejection of claim 9 is also misplaced.

With regard to the dependent claims, Applicant submits that these claims are allowable at least by virtue of their dependency on an allowable independent claim. In addition, claim 2 recites that the method further comprises controlling the tower boom when the tower boom is above the tower boom elevation angle to maintain the tower boom angle relative to gravity at a second set point angle. Since Fulton and Ashworth lack any such tower boom, this step is also lacking in the cited references. Moreover, Fulton and Ashworth in fact lack any angle control relative to gravity. This feature of the invention is not addressed in the Office Action.

Claims 3, 4, 7 and 8 define a step of sensing an angle of the main boom relative to gravity prior to the controlling step. No such sensing is performed in the Fulton and Ashworth patents. This subject matter is also not addressed in the Office Action. Claims 10 and 11 define subject matter related to claims 3 and 4, respectively, and Applicant submits that these claims are also allowable for similar reasons.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 12 was rejected under 35 U.S.C. §103(a) over Fulton in view of Ashworth and U.S. Patent No. 5,251,768 to Yoshimatsu et al. This rejection is respectfully traversed.

Additionally, Applicant respectfully submits that the Yoshimatsu patent does not correct the deficiencies noted above with regard to Fulton and Ashworth. As a consequence, Applicant submits that claim 12 is allowable at least by virtue of its dependency on an allowable independent claim. Moreover, the Fulton apparatus includes outriggers 22 that serve to pre-level the machine at each location where the support structure is to be deployed. See, e.g., column 6,

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lines 30-33. As such, the Fulton system does not have any need for measuring an angle of any boom relative to gravity, and Fulton thus teaches away from the proposed modification.

Withdrawal of the rejection is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully submits that the claims are patentable over the art of record and that the application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicant's undersigned attorney at the telephone number listed below.

Prompt passage to issuance is earnestly solicited.

Respectfully submitted,

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